Plot Data Processing

Vegetation and fuel data submitted to LANDFIRE will be evaluated for inclusion into the LANDFIRE Reference Database (LFRDB). Each sampling unit must meet the following minimum requirements to be included in the LFRDB:

1. The sampling unit must have a georeference and a defined spatial coordinate system.
2. The sampling unit must contain a portion of the attributes needed by LANDFIRE, and the attributes must contain an acceptable level of detail.
3. Necessary supporting information, including definitions of the fields and any codes in the data tables, should accompany the data to ensure the data can be interpreted.

Some examples of acceptable level of detail for attributes include but are not limited to the following. Data containing only vegetation cover type labels must have labels that are detailed enough to be cross walked to LANDFIRE Existing Vegetation Types (EVT). Data containing species composition information must contain enough detail and a large enough species list to be able to run plots through a sequence table to key to LANDFIRE EVT. Species should be attributed with scientific names and canopy cover values must be included or be able to be derived from the information provided. All data meeting LANDFIRE minimum requirements are converted to the standard LANDFIRE LFRDB format. Digital photos of the sampled units are also archived, when available.

To meet needs of LANDFIRE mapping and updating, several key attributes are systematically derived from the acquired data and included in the LFRDB. Data with adequate cover type labels or species composition information are attributed with LANDFIRE Existing and Potential Vegetation Type based on NatureServe's Ecological Systems (Comer and others 2003; Toney and others 2007). Uncompacted crown ratios (Toney and Reeves 2009), and several canopy fuel metrics (such as bulk density) derived from the FuelCalc program (Reinhardt and others 2006) are procured from data containing adequate information on individual tree measurements. At various stages in data compilation, including after the attribution of Ecological Systems, records are carefully screened for information or spatial errors. Questionable data are either flagged in the database or removed from the LFRDB. Accepted data points are processed for associations with a number of ancillary datasets via a series of spatial overlays. These datasets include a Landsat image suite, the National Land Cover Database (Homer and others 2004), the digital elevation model and derivatives (USGS 2005), soil depth and texture layers (for example, USDA NRCS 2005), and a set of 42 simulated biophysical gradient layers (such as evapotranspiration, soil temperature, and degree days). The extracted values from each of these overlays are archived in the LFRDB as predictor variables for the mapping process.

The LFRDB provides field or "ground-truth" data for mapping and modeling vegetation patterns and conditions and for calibrating models developed by the LANDFIRE team. Vegetation and fuel data may or may not be used in cyclical updates depending on the needs of LANDFIRE. For example, we may draw on some data during updates to help develop vegetation transitions. LANDFIRE will convert and archive all acceptable data for evaluation and potential use in future mapping updates or comprehensive remaps.

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